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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,655	09/12/2003	**Chang-Seok Geum**	8734.230/US	1984

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EXAMINER	
TADAYYON ESLAMI, TABASSOM	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
09/02/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/660,655	GEUM, CHANG-SEOK	
	Examiner	Art Unit	
	TABASSOM TADAYYON ESLAMI	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *20 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11 and 14-19* is/are pending in the application.

4a) Of the above claim(s) *1-3, 5-10* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11, 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The amendment to the claim is non-compliant because the status of claim 4 is not listed.

2. Claims 1-3, and 5-10 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group I, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/20/09.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al. (U.S. Patent 6,391,378, hereafter '378), further in view of. Levey et al. (U.S. patent 5,409,545, hereafter '545).

378 teaches a method of controlling a gap between a nozzle and a substrate, comprising;

Lowering a body supporting a syringe having a nozzle at one end towards a substrate (10) [column 2 lines 1-44], stop the lowering when the nozzle contacts the substrate, wherein a contact type switch detects the nozzle contacting the substrate [column 2 lines 45-63].

Lifting up the body, wherein the contact type switch inherently detects the nozzle being isolated from the substrate [column 1 lines 40-45]

Detecting an initial value between the nozzle and the substrate when a state of the contact switch is switched [col. 2, lines 1-44]; and

Positioning the body so that the nozzle reaches a desirable height from the initial value [col 1, lines 40-45]. Although 378 does not clearly teach the proximity sensor detects an initial value between the nozzle and the substrate, however it is obvious the proximity sensor detects the distance between the substrate in lifting up or lowering the body to the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have operated the system of '378 where the proximity sensor detect the distance between the body and the substrate during lifting up or lowering the body, because the sensor can detect the distance from the substrate no matter if it is going upward or downward. 378 teaches that the nozzle may be operated by servo motors, but does not teach that a contact type switch is turned on or off when the nozzle is isolated from the substrate. However, '545 teaches the use of contact switches in order to provide feedback when servo motors have brought something into a desired position. 378 teaches that nozzle contact with the substrate is a desired starting position. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact type switch to have provided feedback when reaching the position with a reasonable expectation of success because '545 teaches that contact switches provide feedback to servo motors.

3. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et

al. (U.S. Patent 6,391,378, hereafter '378), Levey et al. (U.S. Patent 5,409,545, hereafter '545). As applied to cliam 18 above,.further in view of Naoki Nemoto et la (U. S. Patent: 6284073, here after Nemoto).

4. Claim 19 is rejected for the same reason claim 18 is rejected. 378 does not teach the sensor is a laser sensor. Nemoto teaches an apparatus for mounting where a laser sensor used to control the position [abstract]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have operated the system of '378 where the position of the body detects with a laser sensor, because Nemoto teaches it is suitable to use laser sensors for detecting the position.

5. Claims 11, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al. (U.S. Patent 6,391,378, hereafter '378) in view of Yamada et al. (U.S. Patent 6,001,203, hereafter '203), Enchi (WO00/11710, hereafter '710. U.S. Patent 6,455,099 cited as translation) and Levey et al. (U.S. Patent 5,409,545, hereafter '545).

Claims 11 and 15-16 are rejected. 378 teaches a method for controlling a gap between a nozzle and a substrate, comprising: lowering a body supporting a syringe having a nozzle at one end toward a substrate; detecting an initial value between the nozzle and the substrate when a state of the contact type switch is switched (col. 2, lines 1-44); stopping the lowering when the nozzle contacts the substrate, wherein a contact type switch(sensor) detects the nozzle contacting the substrate[column 2 lines 45-63], lifting up the body, so that the nozzle is isolated from the substrate (col. 1, lines 40-45). 378 also teaches lowering the body using a vertical driving motor (servo motor), wherein the vertical driving motor drives the nozzle according to driving data input from

a user (computer system) [column 6 lines 37-52], and lowering the body, wherein the contact type switch (proximity sensor) detects the nozzle contacting the substrate, so that the nozzle reaches a desirable height from the initial value (col 1, lines 40-45). '378 does not explicitly teach that driving data is input by a user using a keyboard or touch screen. The examiner takes official notice of the fact that industrial processes often allow user control via computer interfaces such as keyboards or touch screens. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have operated the system of '378 via user input from a keyboard or touch screen in order to have controlled the system. 378 does not explicitly teach that the dispenser is for making a liquid crystal display (LCD) panel. However, '378 teaches that its method may be generically used to set the distance between the nozzle and substrate in all dispensing systems (col. 5, lines 36-47). '203 teaches that nozzles may be used to deposit liquid crystal material or sealing material in LCDs (col. 1, lines 1-23). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '378 to have set the distance between the nozzle and substrate when forming an LCD such as that of '203 with a reasonable expectation of success because '203 teaches that nozzles are used to deposit layers of LCDs and because '378 teaches a suitable method of setting an appropriate distance between a nozzle and substrate for dispensing systems. The selection of something based on its known suitability for its intended use has been held to support *a prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. 378 does not explicitly

teach that the lifting is at a speed slower than the lowering. '710 teaches when moving nozzles relative to substrates for dispensing materials such as sealants, it is suitable to lift the nozzle at a slower rate than the lowering (Fig. 4, p. 2, see '099, col. 1, lines 42-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have lifted the nozzle slower than it was lowered with a reasonable expectation of success because '710 teaches that such is an operative means of lifting and lowering a nozzle for the application of material such as sealants to substrates. 378 teaches that the nozzle may be operated by servo motors, but does not teach that a contact type switch is turned on or off when the nozzle is isolated from the substrate. However, '545 teaches the use of contact switches in order to provide feedback when servo motors have brought something into a desired position. 378 teaches that nozzle contact with the substrate is a desired starting position. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a contact type switch to have provided feedback when reaching the position with a reasonable expectation of success because '545 teaches that contact switches provide feedback to servo motors.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr '378 in view of Yamada '203, Enchi '710, and Levey '545 as applied to claim 11 above, and further in view of Kitahara et al. (U.S Patent 6,595,819, hereafter '819).

'378, '203, and '545 are discussed above, but do not teach using a laser displacement sensor. '819 teaches that laser displacement sensors may be used in aligning substrates and nozzles for making display devices (col. 14, lines 7-30). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a laser displacement sensor in the device of '378 in order to aid in aligning the substrates with a reasonable expectation of success because '819 teaches that it is a suitable tool for aiding in such alignment.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carr '378 in view of Yamada '203, Enchi '710, and Levey '545 as applied to claim 11 above, and further in view of Vinouze et al. 0d.S Patent 5,431,771, hereafter '771).

'378, '203, and '545 are discussed above, but do not teach using a silver paste. '771 teaches that electrode layers of LCDs may be applied using dispensing nozzles (col. 3, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of '378 to have set the distance between the nozzle and substrate when forming a silver paste layer of an LCD such as that of '771 with a reasonable expectation of success because '771 teaches that nozzles are used to deposit electrode layers of LCDs and because '378 teaches a suitable method of setting an appropriate distance between a nozzle and substrate for dispensing systems. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Response to Arguments

1. Applicant's arguments filed 03/20/09 have been fully considered but they are not persuasive. Applicant argues the references do not teach "lowering the body supporting

a syringe having a nozzle,..", the examiner disagree. In fact 738 clearly teaches moving the body with a motor in z direction (up or down), see claim 11 rejection above.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TABASSOM TADAYYON ESLAMI whose telephone number is (571)270-1885. The examiner can normally be reached on 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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